

**PHASED ARRAY ANTENNA ARCHITECTURE HAVING CENTRALIZED
BEAM FORMING**

ABSTRACT OF THE DISCLOSURE

5

[038] A phased array antenna includes a plurality of assemblies, each assembly including a plurality of elements and a plurality of digitally controlled centralized beam formers coupled to respective ones of the plurality of elements. The digitally controlled centralized beam formers may be disposed
10 under the plurality of radiating elements and may be operable to provide a first signal to the respective ones of the plurality of radiating elements representative of a plurality of signals of a first polarization and a second signal representative of a plurality of signals of a second polarization. A method for distributing signals to a radiating element of a phased array antenna includes the steps of
15 generating a first signal representative of a plurality of signals of a first polarization at a digitally controlled centralized beam former, and distributing the first signal to the radiating element. Similarly, the method and apparatus may be employed with digitally controlled receiving antenna, but with the signal flow reversed.